

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Jürgen STAUDER et al.

Serial No. :

Filed : Herewith

For : Method and device to estimate light source in a common support  
space and a method and device to generate mutual photometric effects.

Art Unit :

Examiner :

PRELIMINARY AMENDMENT

Hon. Assistant Commissioner for Patents,  
Washington, D.C. 20231

Sir:

Please amend the application noted above as follows.

In the specification:

Page 1, line 1, insert the following as a title:

--Method And Device To Estimate Light Source In A Common Support  
Space And A Method And Device To Generate Mutual Photometric Effects--

Page 3, line 1, amend the paragraph as follows:

--A first inventive method estimates light sources in a common support space comprising at least one visual data set respectively associated with at least one individual support space having a position in the common support space, a dimension and a size.--

Page 3, line 33, amend the paragraph as follows:

- In a first embodiment, for each of the visual data sets :
- one determines the number N of light sources,
  - one determines the position of the N light sources, and

- one determines the intensity of each light source.--

Page 4, line 11, amend the paragraph as follows:

--Advantageously, the position of the light sources depends on former positions of the light sources when at least one of the visual data sets is dynamic.-

Page 4, line 18, amend the paragraph as follows:

--The spatial color distribution of at least one of the light sources is determined from a filtering function of the visual data set for the light source in a spatial and/or temporal neighborhood of the light source position.--

Page 4, line 22, amend the paragraph as follows:

--The invention relates also to a method to generate mutual photometric effects in a common support space between a plurality of visual data sets respectively associated with individual support spaces, in which one positions the visual data sets in a common support space wherein:

- one estimates light sources for each of the visual data sets, and,
- one applies estimated light source information derived from the estimated light sources for at least a first of the visual data sets to at least a second of the visual data sets so that the first visual data set illuminates the second visual data set.--

Page 5, line 11, amend the paragraph as follows:

--In a further embodiment, before applying the estimated light source information derived from the estimated light sources for the first visual data set to the second visual data set, one moves at least one of the light sources out of the individual support space associated with the first visual data set.--

Page 5, line 20, delete the paragraph in total:

Page 5, line 32, amend the paragraph as follows:

--According to the invention the device is intended to determine the position of the light sources for each of the visual data sets according to the position, the dimension and the size of the individual support space associated with the visual data set and to provide a color distribution for the light sources that is determined according to the visual data set.--

Page 6, line 5, amend the paragraph as follows:

--The invention concerns also a device to generate mutual photometric effects in a common support space between a plurality of visual data sets respectively associated with individual support spaces, comprising means for positioning the visual data sets in a common support space. According to the invention the device comprises:

means for estimating light sources for each of the visual data sets, and

means for applying estimated light source information derived from the estimated light sources for at least a first of the visual data sets to at least a second of the visual data sets so that the first visual data set illuminates the second visual data set.--

Page 6, line 17, amend the paragraph as follows:

--The invention concerns also an audiovisual terminal comprising  
means for receiving a first visual data set,  
means for requesting the display of at least a second data set cooperating  
with the first data set,

means for indicating the position of the at least second data set on the  
display,

means for generating photometric effects, and

means for displaying the visual data sets and modifying them according to  
the generated photometric effects[,].--

Page 6, line 26, amend the paragraph as follows:

--According to the invention the means for generating photometric effects  
comprise

means for estimating light sources for each of the visual data sets, and means for applying estimated light source information derived from the estimated light sources for at least a first of the visual data sets to at least a second of the visual data sets so that the first visual data set illuminates the second visual data set.--

Page 7, line 13, insert following paragraph:

--Figure 1 represents a television decoder 1 including light source estimation modules 5 and 6 according to the invention.--

Page 7, line 16, delete the paragraph in total.

Page 7, line 19, amend the paragraph as follows:

--The television decoder depicted in Figure 1 includes an interactive engine 2. Connected to the interactive engine, the application 3 contains a user interface and allows the user to select any program on its television decoder for displaying on a display (not represented). The display can be a television screen, a computer screen, an auto stereoscopic display or a display into computer memory for storage or retransmission purpose. The interactive engine allows the user to select a new program or a new visual data set he wants to display while looking at another program. There will be a merge on the display of the different requested visual data sets. The visual data sets can be a video, a three-dimension image, a three-dimension object, a background picture, an audiovisual data set. The interactive engine 2 loads the visual data sets. The drivers and operation system 8 can contain a network interface (not on the drawing) in order to download visual data sets from the World Wide Web or from a local visual data sets database for example.--

In the claims:

Page 13, line 1, amend follows:

--What is claimed is: --

Amend the claims as follows:

1. (Amended) A Method for estimating light sources in a common support space with at least one visual data set respectively associated with at least one individual support space and having a position, a dimension and a size in the common support space, said method comprising the steps of:

determining the position of light sources in accordance with a position, a dimension and size of an individual support space associated with said at least one visual data set; and,

determining a color distribution for said light sources according to said at least one visual data set.

2. (Amended) The method of claim 1, wherein for each of said visual data sets comprising the steps of:

determining the number N of light sources,  
determining the position of the N light sources; and,  
determining the intensity of each light source.

3.(Amended) The method of claim 1, comprising the step of:

automatically deriving the number N of light sources from the size of the individual support space associated with the considered visual data set.

4.(Amended) The method of claim 1, wherein said light sources position determining step depends on former positions of said light sources when at least one of said visual data sets is dynamic.

5.(Amended) The method of claim 1, comprising the step of:

determining a spatial color distribution of at least one of said light sources from a filtering function of said visual data set for said at least one light source in a spatial and/or temporal neighborhood of a position of said at least one light source.

6. (Amended) A method for generating mutual photometric effects in a common support space between a plurality of visual data sets respectively associated with individual support spaces, comprising the steps of:

positioning said visual data sets in a common support space  
estimating light sources for each of said visual data sets; and,  
applying estimated light source information derived from said estimated light sources for at least a first of said visual data sets to at least a second of said visual data sets so that said first visual data set illuminates said second visual data set.

7. (Amended) The method according to claim 6, comprising the steps of:  
moving at least one of said light sources out of individual support space associated with said first visual data set; and,  
applying said estimated light source information derived from said estimated light sources for said first visual data set to said second visual data set.

8. (Amended) The method according to claim 6, comprising the steps of:  
determining the position of light sources in accordance with a position, a dimension and size of an individual support space associated with said at least one visual data set; and,  
determining a color distribution for said light sources according to said at least one visual data set.

9. (Amended) A device for estimating light sources in a common support space comprising at least one visual data set respectively associated with at least one individual support space having a position in the common support space, a dimension and a size,

wherein said device determines the position of light sources for each of said visual data sets according to the position, the dimension and the size of individual support space associated with said visual data set and to provide a color distribution for said light sources that is determined according to said visual data set.

10. (Amended) The device according to claim 9, comprising:  
means to determine the number N of light sources for each of said visual data sets,  
means to determine the position of the N light sources, and  
means to determine the spatial intensity and color distribution of each of said light sources.

11.(Amended) A device generating mutual photometric effects in a common support space between a plurality of visual data sets respectively associated with individual support spaces, comprising means for positioning the visual data sets in a common support space, said device comprises:

means for estimating light sources for each of said visual data sets, and

means for applying estimated light source information derived from said estimated light sources for at least a first of said visual data sets to at least a second of said visual data sets so that the first visual data set illuminates the second visual data set.

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12.(Amended) The device according to claim 11, wherein said means for estimating different light sources emitted by said plurality of data sets are able to determine the position of the light sources for each of said visual data set according to the position, the dimension and the size of the individual support space associated with said visual data set and to determine the color distribution of said light sources according to said visual data set.

13.(Amended) An audiovisual terminal comprising:

means for receiving a first visual data set,  
means for requesting the display of at least a second data set cooperating with the first data set,  
means for indicating the position of the at least second data set on the display,  
means for generating photometric effects, and  
means for displaying said visual data sets and modifying them according to the generated photometric effects, wherein said means for generating photometric effects comprise a generating device.

In the Abstract

Page 17, delete the page heading and abstract and replace with a new abstract supplied herewith on a separate sheet.

REMARKS

The claims and specification are amended to comport with USPTO practice.

No new matter has been added. No fee is believed to be due.

Respectfully submitted  
Jürgen STAUDER et al.

February 14, 2002

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AMENDMENTS WITH MARKINGS TO SHOW THE CHANGES MADE

Page 3, line 1, amend the paragraph as follows:

[One object of the invention is a] A first inventive method [to estimate] estimates light sources in a common support space comprising at least one visual data set respectively associated with at least one individual support space having a position in the common support space, a dimension and a size.

Page 3, line 33, amend the paragraph as follows:

In a [preferred] first embodiment, for each of [said] the visual data sets :

- one determines the number N of light sources,
- one determines the position of the N light sources, and
- one determines the intensity of each light source.

Page 4, line 11, amend the paragraph as follows:

Advantageously, the position of the light sources depends on former positions of the light sources when at least one of [said] the visual data sets is dynamic.

Page 4, line 18, amend the paragraph as follows:

The spatial color distribution of at least one of the light sources is determined from a filtering function of the visual data set for (said) the light source in a spatial and/or temporal neighborhood of the light source position.

Page 4, line 22, amend the paragraph as follows:

The invention relates also to a method to generate mutual photometric effects in a common support space between a plurality of visual data sets respectively associated with individual support spaces, in which one positions the visual data sets in a common support space  
wherein:

- one estimates light sources for each of [said] the visual data sets, and
- one applies estimated light source information derived from [said] the estimated light sources for at least a first of [said] the visual data sets to at least a second of [said] the visual data sets so that the first visual data set illuminates the second visual data set.

Page 5, line 11, amend the paragraph as follows:

In a [preferred] further embodiment, before applying [said] the estimated light source information derived from [said] the estimated light sources for [said] the first visual data set to [said] the second visual data set, one moves at least one of [said] the light sources out of the individual support space associated with [said] the first visual data set.

Page 5, line 20, delete the paragraph in total:

(According to a preferred embodiment the estimation of the different light sources for the plurality of data sets is done according to the method of any of claims 1 to 5.)

Page 5, line 32, amend the paragraph as follows:

According to the invention the device is intended to determine the position of the light sources for each of [said] the visual data sets according to the position, the dimension and the size of the individual support space associated with [said] the visual data set and to provide a color distribution for [said] the light sources that is determined according to [said] the visual data set.

Page 6, line 5, amend the paragraph as follows:

The invention concerns also a device to generate mutual photometric effects in a common support space between a plurality of visual data sets respectively associated with individual support spaces, comprising means for positioning the visual data sets in a common support space. According to the invention the [said] device comprises :

- means for estimating light sources for each of [said] the visual data sets, and
- means for applying estimated light source information derived from [said] the estimated light sources for at least a first of [said] the visual data sets to at least a second of [said] the visual data sets so that the first visual data set illuminates the second visual data set.

Page 6, line 17, amend the paragraph as follows:

The invention concerns also an audiovisual terminal comprising  
means for receiving a first visual data set,  
means for requesting the display of at least a second data set cooperating with the first data set,  
means for indicating the position of the at least second data set on the display,  
means for generating photometric effects, and  
means for displaying [said] the visual data sets and modifying them according to the generated photometric effects[,].

Page 6, line 26, amend the paragraph as follows:

According to the invention the [said] means for generating photometric effects comprise  
means for estimating light sources for each of [said] the visual data sets, and  
means for applying estimated light source information derived from [said] the estimated light sources for at least a first of [said] the visual data sets to at least a second of [said] the visual data sets so that the first visual data set illuminates the second visual data set.

Page 7, line 16, delete the following paragraph:

[Figure 1 represents a television decoder 1 including light source estimation modules 5 and 6 according to the invention.]

Page 7, line 19, amend the paragraph as follows:

The television decoder depicted in Figure 1 includes an interactive engine 2. Connected to the interactive engine, the application 3 contains a user interface and allows the user to select any program on its television decoder for displaying on a display (not represented). The display can be a television screen, a computer screen, an auto stereoscopic display or a display into computer memory for storage or retransmission purpose. The interactive engine allows the user to select a new program or a new visual data set he wants to display while looking at another program. There will be a merge on the display of the different requested visual data sets. The visual data sets can be a video, a three-dimension image, a three-dimension object, a background picture, an audiovisual data set. The interactive engine 2 loads the visual data sets. The drivers and operation system 8 can contain a network interface (not on the drawing) in order to download visual data sets from the World Wide Web or from a local visual data sets database for example.

Page 13, line 1, delete "CLAIMS" and replace with,

--What is claimed is: --

Page 13, line 1, amend follows:

--What is claimed is: --

Amend the claims as follows:

1. (Amended) A Method [to estimate] for estimating light sources in a common support space [comprising] with at least one visual data set respectively associated with at least one individual support space and having a position [in the common support space], a dimension and a size in the common support space, said method comprising the steps of:

determining the position of light sources in accordance with a position, a dimension and size of an individual support space associated with said at least one visual data set; and,

determining a color distribution for said light sources according to said at least one visual data set.

[wherein the position of the light sources is determined according to the position, the dimension and the size of the individual support space associated with said at least one visual data set and in that said light sources have a color distribution that is determined according to said at least one visual data set.]

2. (Amended) The method of [Method according to] claim 1, wherein for each of said visual data sets comprising the steps of:

[one determines] determining the number N of light sources,  
[one determines] determining the position of the N light sources[,]; and,  
[one determines] determining the intensity of each light source.

3.(Amended) The method of [Method according to] claim 1, [wherein the number N of light sources is derived] comprising the step of:

automatically deriving the number N of light sources from the size of the individual support space associated with the considered visual data set.

4.(Amended) The method of [Method according to] claim 1, wherein [the] said light sources position [of the light sources] determining step depends on former positions of [the] said light sources when at least one of said visual data sets is dynamic.

5.(Amended) The method of [Method according to] claim 1, [wherein the spatial color distribution of at least one of the light sources is determined from a filtering function of the visual data set for said light source in a spatial and/or temporal neighborhood of the light source position] comprising the step of:

determining a spatial color distribution of at least one of said light sources from a filtering function of said visual data set for said at least one light source in a spatial and/or temporal neighborhood of a position of said at least one light source.

6. (Amended) [Method to generate] A method for generating mutual photometric effects in a common support space between a plurality of visual data sets respectively associated with individual support spaces, [in which one positions the visual data sets in a common support space wherein] comprising the steps of:

positioning said visual data sets in a common support space  
[one estimates] estimating light sources for each of said visual data sets[,]; and,

[one applies] applying estimated light source information derived from said estimated light sources for at least a first of said visual data sets to at least a second of said visual data sets so that [the] said first visual data set illuminates [the] said second visual data set.

7. (Amended) [Method] The method according to claim 6, [wherein, before applying said estimated light source information derived from said estimated light sources for said first visual data set to said second visual data set, one moves at least one of said light sources out of the individual support space associated with said first visual data set] comprising the steps of:

moving at least one of said light sources out of individual support space associated with said first visual data set; and,

applying said estimated light source information derived from said estimated light sources for said first visual data set to said second visual data set.

8. (Amended) [Method] The method according to claim 6, [wherein the estimation of the different light sources for the plurality of data sets is done according to the method of claim 1] comprising the steps of:

determining the position of light sources in accordance with a position, a dimension and size of an individual support space associated with said at least one visual data set; and,

determining a color distribution for said light sources according to said at least one visual data set.

9. (Amended) [Device to estimate] A device for estimating light sources in a common support space comprising at least one visual data set respectively associated with at least one individual support space having a position in the common support space, a dimension and a size,

wherein said device [is intended to determine] determines the position of [the] light sources for each of said visual data sets according to the position, the dimension and the size of [the] individual support space associated with said visual data set and to provide a color distribution for said light sources that is determined according to said visual data set

[said device being preferably provided for putting in practice the method according to claim 1].

10. (Amended) [Device] The device according to claim 9, [wherein it comprises] comprising:

means to determine the number N of light sources for each of said visual data sets,

means to determine the position of the N light sources, and

means to determine the spatial intensity and color distribution of each of said light sources.

11.(Amended) [Device to generate] A device generating mutual photometric effects in a common support space between a plurality of visual data sets respectively associated with individual support spaces, comprising means for positioning the visual data sets in a common support space, [and wherein] said device comprises:

means for estimating light sources for each of said visual data sets, and

means for applying estimated light source information derived from said estimated light sources for at least a first of said visual data sets to at least a second of said visual data sets so that the first visual data set illuminates the second visual data set[.

said device being preferably provided for putting in practice the method according to claim 6].

12.(Amended) [Device] The device according to claim 11, wherein [the] said means for estimating [the] different light sources emitted by [the] said plurality of data sets are able to determine the position of the light sources for each of said visual data set according to the position, the dimension and the size of the individual support space associated with said visual data set and to determine the color distribution of said light sources according to said visual data set.

13.(Amended) [Audiovisual] An audiovisual terminal comprising:

means for receiving a first visual data set,

means for requesting the display of at least a second data set cooperating with the first data set,

means [(2)] for indicating the position of the at least second data set on the display,

means for generating photometric effects, and

means for displaying said visual data sets and modifying them according to the generated photometric effects, wherein said means for generating photometric effects comprise a generating device [according to claim 11, and preferably also an estimating device according to claim 9].

Page 17, delete in total:

[Method and device to estimate light source in a common support space and a method and device to generate mutual photometric effects.

### **Abstract**

A method to estimate light sources in a common support space comprising at least one visual data set associated with at least one support space having a position, a dimension and a size. The position of the light sources is determined according to the position, the dimension and the size of the individual support space and the color distribution is determined according to the visual data set.

A method to generate mutual photometric effects in a common support space between a plurality of visual data, in which one positions the visual data sets in a common support space. One estimates light sources and one applies estimated light source information so that at least one first visual data set illuminates at least a second visual data set.

FIG 1]

**--Abstract**

A method to estimate light sources in a common support space comprises at least one visual data set associated with at least one support space having a position, a dimension and a size. The position of the light sources is determined according to the position, the dimension and the size of the individual support space and the color distribution is determined according to the visual data set. A further method generates mutual photometric effects in a common support space between a plurality of visual data when the visual data sets are positioned in a common support space. Estimating light sources and applying the estimated light source information so that at least one first visual data set illuminates at least a second visual data set.--

DRAFT PAGES RELEASED